



Publication Year	1998
Acceptance in OA	2023-02-10T13:42:34Z
Title	TC/TM DATABASE FOR THE EPIC MOS CAMERA SYSTEM (EMCS)
Authors	LA PALOMBARA, NICOLA
Handle	http://hdl.handle.net/20.500.12386/33400

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K1	Enter SSB Mode	5	5	N/A	N/A	N/A	0	NORMAL		

This TC is used to perform transition to Safe Stand-by Mode. In this Mode EMDH and EMCR memory loading can be performed. EMDH will switch off all the extraheating/HOPs heaters, set CCD temperature to a default value and close the FW, if not.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Safe StandBy					

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K10	Exit BSW Mode	5	2	252	N/A	N/A	N/A	NORMAL	X4001	SafeStandBy mode

This TC is used to exit the EMDH Basic Software Maintenance Mode. EMDH will perform the a warm start and it will automatically enter the SAFE STAND-BY Mode.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K9

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K100	PreAmp PW On/Off	5	3	253	9	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to switch-on/off the preamplifiers in the EMCH. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K101	AnCha PW On/Off	5	3	253	10	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to switch-on/off the analogue chains in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K102	Sensors On/Off	5	3	253	11	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to switch-on/off the EMAE temperature control circuits and some sensors in the EMCH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K103	Load HBR4 BPT	5	3	255	134	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixels table for the HBR 4 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K110

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K104	Load HBR5 BPT	5	3	255	135	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixels table for the HBR 5 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K111

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K105	Load HBR6 BPT	5	3	255	136	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixels table for the HBR 6 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K112

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K106	Load HBR7 BPT	5	3	255	137	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixels table for the HBR 7 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K113

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K107	Load HBR8 BPT	5	3	255	138	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixels table for the HBR 8 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K114

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K108	Report HBR2 BPT	5	4	255	132	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR2 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K12

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K109	Report HBR3 BPT	5	4	255	133	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR3 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K13

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K11	LOAD EMDH	6	1	N/A	N/A	0	N/A	HAZARDOU	X4001	SafeStandBy mode

This TC is used to load part of the EMDH RAM memory area. The parameters are used to specify respectively the start address and data to be loaded. This TC will be executed just in Safe Stand-By Mode with EMDH in Maintenance Mode.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K51

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K110	Report HBR4 BPT	5	4	255	134	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR 4 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K103

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K111	Report HBR5 BPT	5	4	255	135	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR 5 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K104

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K112	Report HBR6 BPT	5	4	255	136	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR 6 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K105

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K113	Report HBR7 BPT	5	4	255	137	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR 7 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K106

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K114	Report HBR8 BPT	5	4	255	138	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report from the EMDH the parameters loaded with the Load HBR 8 Bright Pixel Table TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K107

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K115	Ap./Rem. PW S.H.	5	3	255	145	N/A	N/A	NORMAL	X4006	ExtraheatingMode

This TC is used by EMDH to switch-on/off the relay which allows to apply primary power to the Shroud Heater.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K116	Dload EMCR M PMT	5	3	254	6	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Pattern/Masks table stored in the selected EMCR memory area to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K72

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K117	Dload EMCR M OST	5	3	254	7	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Offset table stored in the selected EMCR memory area to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K73

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K118	Dload EMCR M Seq	5	3	254	8	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Sequence Program stored in the selected EMCR memory area to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K74

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K119	Dload EMCR M TI	5	3	254	9	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Test Image stored in the selected EMCR memory area to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K75

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K12	Load HBR2 BPT	5	3	255	132	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixel table for the HBR 2 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K108

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K120	Reboot EMCR RAMP	5	3	254	16	N/A	N/A	NORMAL	X4001	SafeStandBy mode

This TC is used, by EMCR, to perform a complete bootstrap of the EMCR S/W as performed at the EMCR switch-on. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K121	Load EMCR EDU WP	5	3	254	40	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in one of the 8 EMCR EDUs the observation window parameters to be used. Parameters are used to load the complete EMCR command foreseen for this function. Note that the 2 EDUs of the same group will have the same window parameters, therefore a single command for each group can be used.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K122	Start EMCR Obse.	5	3	254	33	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to put the EMCR in Observation mode. EMCR will automatically provide to send to EMAE the right commands in order to start the observation. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K123

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K123	Stop EMCR Obser.	5	3	254	34	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to exit the EMCR from Observation mode. EMCR will automatically provide to send to EMAE the right commands in order to stop the observation. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K122

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K124	EMCRStartTestIm.	5	3	254	36	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to put the EMCR in Test mode. EMCR will send through the selected HBR I/F the built-in or the loaded test image. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K125

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K125	EMCRStopTestIma.	5	3	254	35	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to exit the EMCR from the Test mode. EMCR will stop to send test data through the previously selected HBR I/F. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K124

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K13	Load HBR3 BPT	5	3	255	133	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixel table for the HBR 3 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K109

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K14	Start Per. Task	5	3	0	3	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to start the specified periodic task in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K16

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K15	Start Spor. Task	5	3	1	3	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to start the specified sporadic task in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K16	Stop Per. Task	5	3	0	4	N/A	N/A	NORMAL	X4003	InFlightTestMode

This TC is used to stop the specified periodic task in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K14

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K17	Suspend Task	5	5	N/A	N/A	N/A	32	NORMAL	X4003	InFlightTestMode

This TC is used to suspend the specified task in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K18

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K18	Resume Task	5	5	N/A	N/A	N/A	33	NORMAL	X4003	InFlightTestMode

This TC is used to resume the specified task in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K17

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K19	Load Sp. T. APT	5	3	1	1	N/A	N/A	NORMAL	X4004	SSB or IFT mode

This TC is used to load the specified sporadic task of the EMDH in the APT.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K22

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K2	Enter IDLE Mode	5	5	N/A	N/A	N/A	1	NORMAL		

This TC is used to perform transition to Idle Mode. In this Mode all the configuration commands can be executed (except the EMDH and EMCR critical operations as memory loading and testing) and transition to other modes can be performed.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Idle					

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K20	Load Pe. T. PPT	5	3	0	1	N/A	N/A	NORMAL	X4004	SSB or IFT mode

This TC is used to load the specified periodic task of the EMDH in the PPT.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K21

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K21	Unload P. T. PPT	5	3	0	2	N/A	N/A	NORMAL	X4004	SSB or IFT mode

This TC is used to unload the specified periodic task of the EMDH from the PPT.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K20

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K22	Unload S. T. APT	5	3	1	2	N/A	N/A	NORMAL	X4004	SSB or IFT mode

This TC is used to unload the specified sporadic task of the EMDH from the APT.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K19

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K3	Enter PRIME Mode	5	5	N/A	N/A	N/A	2	NORMAL	X4000	Idle mode

This TC is used to perform transition to PRIME Mode. In this mode, EMCS will start the CCD readout depending on the instrument configuration performed in IDLE Mode. Scientific TM packets will be generated with information regarding the incoming events.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Prime					K2

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K30	Test Command	13	1	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is intended to have a confirmation that the link to the application is operational. EMDH will response to the TC issuing a Successful Command Acceptance Report (TM 3.2)

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K31	Load HBR Config.	5	3	255	128	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the enable/disable status and the processing. End-effect is verified with H/K parameters from E1028 to E1035.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K37

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K32	LoadHBR BuffSize	5	3	255	129	N/A	N/A	NORMAL	X4002	I or IFT mode

Load HBR Buffer Size This TC is used to load in the EMDH the buffer allocation for each HBR channel to be used in the scientific processing of the incoming events.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K38

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K33	Load HBR 1 BPT	5	3	255	131	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMDH the bright pixel table for the HBR 1 channel.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K39

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K34	LoadHBR Thr.Val.	5	3	255	130	N/A	N/A	NORMAL	X4002	I or IFT mode

Load HBR Threshold Values. This TC is used to load in the EMDH the low/high threshold values for each HBR channel to be applied in the scientific processing of the incoming events. Even the pattern reference used in the pattern discrimination process will be loaded.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K40

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K35	Load EXTH Conf.	5	3	255	144	N/A	N/A	NORMAL	X4002	I or IFT mode

Load Extraheating Configuration. This TC is used to load in the EMDH the configuration of the relays to be used in the different extraheating submodes. Also the safety temperature limits checked by the EMDH during the different extraheating submodes are loaded.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K41

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K36	LoadTermMoniLim.	5	3	255	160	N/A	N/A	NORMAL	X4002	I or IFT mode

Load Thermal Monitoring Limits. This TC is used to load in the EMDH the safety temperature limits checked by the EMDH when the normally operating thermal control of the focal plane is active.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K42

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K37	Report HBR Conf.	5	4	255	128	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load HBR Channel Configuration TC

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K31

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K38	Rep.HBR BuffSize	5	4	255	129	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load HBR Buffer Size TC

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K32

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K39	Report HBR 1 BPT	5	4	255	131	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load HBR 1 Brigh Pixel Table

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K33

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K4	Enter FAST Mode	5	5	N/A	N/A	N/A	3	NORMAL	X4000	Idle mode

This TC is used to perform transition to FAST Mode. In this mode, EMCS will start the CCD readout depending on the instrument configuration performed in IDLE Mode. Scientific TM packets will be generated with information regarding the incoming events.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Fast					K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K40	ReportHBR ThrVal	5	4	255	130	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load Scientific Threshold Values TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K34

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K41	ReportEXTH Conf.	5	4	255	144	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load Extraheating Configuration TC

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K35

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K42	ReportTermMonLim	5	4	255	160	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to report, from the EMDH, the parameters loaded with the Load Thermal Monitoring Limits TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K36

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K43	Arm PW Door HOP	5	3	255	208	N/A	N/A	NORMAL	X4000	Idle mode

This TC is used by EMDH to arm the switch-on of the relay which allows to apply primary power to the HOP in charge to open the Door.
This TC will be correctly executed only if the Filter Wheel is in Open position. In order to remove the arming condition, without operating the HOP, it will be necessary to send the Enter EMCS Idle Mode TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1065	40001	108	0	8	Armed		K44			K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K44	Fire PW Door HOP	5	3	255	209	N/A	N/A	HAZARDOU	X4000	Idle mode

This TC is used by EMDH to fire the switch-on of the relay which allows to apply primary power to the HOP in charge to open the Door
This TC is executed only if the Arm Power Door HOP is previously executed. Power will be automatically removed after the specified time or when Remove Power TC is received.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1010	40001	35	2	1	ON	K43	K45			K45

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K45	Rem. PW Door HOP	5	3	255	210	N/A	N/A	NORMAL	X4000	Idle mode

This TC is used, by the EMDH, to switch-off the relay which allows to apply primary power to the HOP in charge to open the Door. This TC will be executed only if the Primary Power to Door HOP is presently applied.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1010	40001	35	2	1	OFF	K44				K44

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K46	Arm PW VenValHOP	5	3	255	224	N/A	N/A	NORMAL	X4000	Idle mode

TC used by the EMDH to arm the switch-on of the relay which allows to apply primary power to the HOP which opens the Venting Valve.
In order to remove the arming condition, without operating the HOP, it will be necessary to send the Enter EMCS Idle Mode TC.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1066	40001	109	0	8	Armed		K47			K2

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K47	Fire PW VenVaHOP	5	3	255	225	N/A	N/A	HAZARDOU	X4000	Idle mode

TC used by the EMDH to fire the switch-on of the relay which allows to apply primary power to the HOP which opens the Venting Valve. This TC is executed only if the Arm Venting Valve HOP is previously executed. Power will be automatically removed after the specified time or when Remove Power TC is received.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1011	40001	35	3	1	ON	K46	K48			K48

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K48	RemovePW VeVaHOP	5	3	255	226	N/A	N/A	NORMAL	X4000	Idle mode

This TC is used, by the EMDH, to switch-off the relay which allows to apply primary power to the HOP which opens the Venting Valve.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1011	40001	35	3	1	OFF	K47				K47

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K49	Apply Power F.W.	5	3	255	241	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used, by the EMDH, to switch-on the relay which allows to apply primary power to the Filter Wheel. The parameter allows to select which coil of the Filter Wheel shall be powered. End-effect is verified with H/K parameters E1012-13.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K50

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K5	Enter O Mode	5	5	N/A	N/A	N/A	4	NORMAL	X4000	Idle mode

This TC is used to perform transition to OFFSET and VARIANCE Mode. In this mode, EMCS will start the CCD readout of 1 frame in transparent mode. EMCS will reject the specified number of frames before to store the last one, compute the Offset and Variance, send to ground the result, update the EMDH Table.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Offset					K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K50	Remove PW F. W.	5	3	255	242	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used, by the EMDH, to switch-off the relay which allows to apply primary power to the Filter Wheel. End-effect is verified with H/K parameters E1012-13.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K49

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K51	Dump EMDH Memory	6	2	N/A	N/A	0	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to dump some EMDH memory area (RAM + PROM). The parameters are used to specify respectively the start address and the length of the memory area to be dumped. One or more Memory Dump Reports (TM 6.2) will be sent by TM link.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K11

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K52	Cal. EMDH M. CES	6	3	N/A	N/A	0	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to calculate checksum of the specified part of the EMDH PROM/RAM. The parameters are used to specify respectively the start address and length of the area to be checked.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K53	LOAD EMDH TABLES	6	1	N/A	N/A	1	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in a specific EMDH memory area the Offset, Sequence, Pattern Mask tables or Test Image to be loaded in EMCR. More TC will be used to load the complete table in the EMDH, start address and length will be opportunely set.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K54

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K54	Dump EMDH Tables	6	2	N/A	N/A	1	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump a specific EMDH memory area where the Offset, Sequence, Pattern Mask tables and Test Image, are stored. This TC is used to dump a specific EMDH memory area where the Offset, Sequence and Pattern tables read from EMAE, EMCR EDU or EMCR Memory are stored. Start address will be fixed. One or more Memory Dump Reports (TM 6,2) will be sent by TM.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K53

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K55	Rep. TMP Gen. S.	9	1	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to trigger the report of the TM Packets Generation Status (TM 9,1).

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K56	Enable Gen. ATMP	9	2	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to enable the generation of all the TM Packets.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K57

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K57	Disable Ge. ATMP	9	3	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to disable the generation of all the TM Packets.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K56

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K58	Enable Gen. STMP	9	4	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to enable the generation of the selected TM Packets.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K59

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K59	Disable Ge. STMP	9	5	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to disable the generation of the selected TM Packets.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K58

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K6	Enter CCDD Mode	5	5	N/A	N/A	N/A	5	NORMAL	X4000	Idle mode

This TC is used to perform transition to Diagnostic Mode. EMCS will start the CCD readout of 1 frame in transparent mode. Scientific TM packets will be generated with the relevant pixel information. EMCS will reject the specified number of frames before to store the last one, send it to Ground and go to Idle mode.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	CCD Diagnos.					K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K60	Enable OBT Sync.	10	2	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to arm the time synchronization function in the EMDH.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K61	Add Time Code	10	3	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to add the received Time Code to the actual EMDH on-board time.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K62	Enable OBT Veri.	10	5	N/A	N/A	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to trigger the generation of the Time Verification Report (TM 10,5).

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K63	Preset Time Cnt.	5	3	255	176	N/A	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to load the preset value of the counter used for the automatic generation of the reset pulse to the EMCR. The preset value can range from 1 s to 18 h.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K64	Dump EMCR Memory	6	2	N/A	N/A	16	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to dump some EMCR memory area (RAM+PROM). The parameters are used to specify, respectively, the start address and the length of the memory area to be dumped. One or more Memory Dump Reports (TM 6,2) will be sent by TM link.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K70

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K65	Cal. EMCR M CES	6	3	N/A	N/A	16	N/A	NORMAL	X4005	SSB/I/IFT mode

This TC is used to calculate checksum of the specified part of EMCR PROM/RAM memory area. The parameters are used to specify, respectively, the start address and length of the area to be checked.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K66	Download EDU PMT	5	3	254	12	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Pattern/Masks table stored in the selected EMCR EDU to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K79

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K67	Download EDU OST	5	3	254	13	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Offset table stored in the selected EMCR EDU to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K78

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K68	Download Sequen.	5	3	254	14	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to dump the Sequence Program stored in the selected EMAE Sequencer to a dedicated memory area in the EMDH. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K82

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K69	Stop EMCR RAM Pr	5	3	254	39	N/A	N/A	NORMAL	X4001	SafeStandBy mode

This TC is used, by EMCR, to stop execution of the program stored in RAM Memory and start execution of Boot program. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K71

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K7	Enter EXTH Mode	5	5	N/A	N/A	N/A	6	NORMAL	X4000	Idle mode

This TC is used to perform transition to Extraheating Mode. The requested extraheating submode will be applied. The specified EMCR Thermal Control temperature setting will be applied (meaningful only when Annealing heater is used). This mode can be entered only if the Filter Wheel is in Open position.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	Extraheating					K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K70	LOAD EMCR	6	1	N/A	N/A	16	N/A	HAZARDOU	X4001	SafeStandBy mode

This TC is used to load part of the EMCR RAM memory area. The parameters are used to specify respectively the start address and data to be loaded. Command will be executed only in Safe Stand-by mode with EMCR running the Boot program.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K64

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K71	Start EMCR RAM P	5	3	254	17	N/A	N/A	NORMAL	X4001	SafeStandBy mode

This TC is used, by EMCR, to start execution of the program stored in RAM Memory. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K69

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K72	Load EMCR M. PMT	5	3	254	19	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load the Pattern/Masks Table in the addressed EMCR memory areas available for this scope. Parameters are used to load the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K116

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K73	Upload EMCRM OST	5	3	254	20	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMCR memory the complete Offset Table previously stored in the EMDH Tables area. Parameters are used to include the first part of the command to be delivered from EMDH to EMCR.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K117

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K74	Upload EMCRM Seq	5	3	254	21	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMCR memory the complete Sequence Program previously stored in the EMDH Tables area. Parameters are used to include the first part of the command to be delivered from EMDH to EMCR.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K118

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K75	Upload EMCR M TI	5	3	254	22	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in the EMCR memory the complete Test Image previously stored in a dedicated EMDH memory area. Parameters are used to include the first part of the EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K119

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K76	Set EMCR EDU THR	5	3	254	24	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set the low threshold of the selected EMCR EDU. In case of EDU alternate working mode, both thresholds can be set. Parameters are used to include the complete EMCR command foreseen for this function. End-effect is verified via H/K parameters from E1398 to E1413.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K77	Configure EDU	5	3	254	27	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set the operating mode (Transparent, Imaging, Timing, Threshold) and status (Stop, Run or Alternate) of each EDU. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K78	Load EDU OffsetT	5	3	254	31	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load one of the eight Offset Tables stored in the EMCR memory in one of the eight EMCR EDUs. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K67

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K79	Load EDU PMTable	5	3	254	32	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load one of the eight Pattern/Masks tables stored in the EMCR EDUs. Parameters are used to include the complete EMCR command dedicated to this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K66

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K8	Enter IFT Mode	5	5	N/A	N/A	N/A	16	NORMAL	X4000	Idle mode

This TC is used to perform transition to IN-FLIGHT TEST Mode. EMCS or EMDH In-Flight Test will be activated depending on the parameter value. EMCS selection will allow to execute almost all the existing TCs without any on-board filtering or control.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10	10	K1008	40001	32	0	8	InFlightTest					K2

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K80	Set EMAE MUX Pos	5	3	254	23	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to configure Sequencers (including setting of Multiplexers position) in the EMAE. This TC allows to associate each CCD node to an EMCR EDU. Parameters are used to include the complete EMCR command foreseen for this function. The uploaded configuration is not applied till to the observation start.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K81	Load EMAE Comman	5	3	253	25	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to send one low level command to EMAE, through EMCR. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K82	Load EMAE Sequen	5	3	254	26	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to load in one of the four EMAE Sequencers one of the four Sequence Programs stored in the EMCR memory.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K68

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K83	Set EMCR Obs. T.	5	3	254	30	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the timings (integration time, readout delay time, etc.) needed for a correct observation cycle. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K84	Synchronize F.W.	5	3	254	28	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to synchronize the Filter Wheel. The FW will be moved in the closed position (stop sensors aligned to hall sensors). Parameters are used to include the complete EMCR command foreseen for this function. In worst case, the synchronization can take up to 20 minutes.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K85	Turn Filt. Wheel	5	3	254	29	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to turn the Filter Wheel in one defined position. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K9	Enter BSW Mode	5	1	252	N/A	N/A	N/A	NORMAL	X4001	SafeStandBy mode

This TC is used to enter the EMDH Basic Software Maintenance Mode. This mode allows to load, dump and calculate checksum only. Furthermore any other EMDH activity will be stopped (including H/K generation).

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												K10

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K91	Set CCD1 Voltage	5	3	253	0	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD1 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K92	Set CCD2 Voltage	5	3	253	1	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD2 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K93	Set CCD3 Voltage	5	3	253	2	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD3 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K94	Set CCD4 Voltage	5	3	253	3	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD4 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

EMCS TC PACKET DETAILED LIST

EPIC-EST-TN-008 I.2

Appendix G

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K95	Set CCD5 Voltage	5	3	253	4	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD5 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K96	Set CCD6 Voltage	5	3	253	5	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD6 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K97	Set CCD7 Voltage	5	3	253	6	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set all the CCD7 voltages (bias and clock) in the EMAE. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K98	Set FPT Main Con	5	3	253	7	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set the temperature used by main control of the EMAE for the Focal Plane thermal regulation. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												

MF_NO	NAME	TYPE	STYPE	TID	FID	MID	MODE	CATEGORY	CONDITION	CONDITION NAME
K99	Set FPT Red. Con	5	3	253	8	N/A	N/A	NORMAL	X4002	I or IFT mode

This TC is used to set the temperature used by redundant control of the EMAE for the Focal Plane thermal regulation. Parameters are used to include the complete EMCR command foreseen for this function.

ACC.	EXEC.	VERIF. TIME	VERIF. TM PREF	TPN	OFFSET	START	WIDTH	VERIF. TM VAL.	PREC.	FOLL.	ALT.	RED.	OPP.
10	10												